# Lena Collienne

# Curriculum Vitae

✓ lena@lenacoll.de
↓ lenacoll.de

**Q** github.com/lenacoll

# Research

**Postdoctoral Research**, *Fred Hutchinson Cancer Center*, (Advisor: Frederick Matsen IV, PhD). Developing novel methods for phylogenetic inference using machine learning.

Postdoctoral Research, University of Canterbury,

(Advisor: Alex Gavryushkin, PhD).

Extending subtree prune and regraft operations to ranked phylogenetic trees and investigating thereby introduced distance measures for phylogenetic time trees.

#### PhD Research, University of Otago,

(Advisors: Alex Garvyushkin, PhD, and David Bryant, PhD).

Introducing and analysing spaces of phylogenetic time trees based on nearest neighbour interchange tree rearrangements.

M.Sc. Research, University of Greifswald,

(Advisors: Mareike Fischer, PhD, and Alex Gavryushkin, PhD). Establishing properties of ranked nearest neighbour interchange moves between ranked phylogenetic trees

## Education

- 2018–2021 Doctor of Philosophy, Computer Science, University of Otago (NZ).
- 2016–2018 Master of Science, Biomathematics, University of Greifswald (GER).
- 2012–2015 Bachelor of Science, Biomathematics, University of Greifswald (GER).

## Work Experience

- 2023-now **Postdoctoral Research Fellow**, *Matsen group*, Fred Hutch Cancer Center (US).
- 2022–2023 **Postdoctoral Research Fellow**, *BioDS lab, School of Mathematics and Statistics*, University of Canterbury (NZ).

## Teaching Experience

- 2023–2024 **Facilitator**, *Girls Who Code*, Fred Hutch Cancer Center (Seattle, WA, USA). 2022 **Lecturer**, *STAT211: Random Processes*, University of Canterbury (NZ).
  - 2019 **Tutor**, *COSC341: Theory of Computing*, University of Otago (NZ).
- 2015–2016 Summer Research Project, University of Auckland (NZ).

#### Scholarships and Awards

- 2022 Hatherton Award (Royal Society of New Zealand)
- 2021 Exceptional PhD thesis (Division of Science, University of Otago)
- 2018–2021 University of Otago Doctoral Scholarship
  - 2018 Externally Funded Research Grant (Max Planck Institute Plön)
  - 2015 Summer Research Scholarship (University of Auckland)
  - 2015 PROMOS Travel Scholarship (University of Greifswald)
- 2014–2015 *Deutschlandstipendium* (Alfried Krupp von Bohlen und Halbach Foundation/Federal Government of Germany)

#### Additional Activities

- 2021 President of the Otago Computer Science Society (University of Otgao)
- 2019–2021 Member of the Postgraduate Committee (Department of Computer Science, University of Otago)
- 2019–2021 Organising the annual Postgraduate Symposium (Department of Computer Science, University of Otago)
- 2019–2021 Member of Student Council (Institute for Mathematics and Computer Science, University of Greifswald)

## Talks

Conference Talks

- 2024 **Evolution 2024**, *Montreal (CA)*. Contributed talk: Instability in Phylogenetic Trees after Taxon Addition
- 2023 **SMB meeting 2023**, *Columbus (OH, US)*. Invited minisymposium talk: Spaces of Discrete Time Trees
- 2022 **Phylomania 2022**, *Hobart (AU)*. Contributed talk: Subtree Prune and Regraft on Ranked Trees
- 2021 **Phylomania 2021** (Best Student Talk Award), *Online*. Contributed talk: Distances between Phylogenetic Time Trees
- 2021 **NZ Phylogenomics Meeting**, *Akaroa (NZ)*. Contributed talk: The Space of Discrete Coalescent Trees
- 2020 **NZ Phylogenomics Meeting**, *Waiheke (NZ)*. Contributed talk: Online Algorithms in Computational Biology
- 2019 **NZ Phylogenomics Meeting**, *Napier (NZ)*. Contributed talk: The Ranked Nearest Neighbour Interchange Space of Phylogenetic Trees

Invited Seminar Talks

- 2021 **Departmant of Mathematics**, *University of Otago (NZ)*. The Space of Discrete Coalescent Trees
- 2020 **Online Seminars on Algorithms and Complexity in Phylogenetics**, *Online.* Computing the Ranked Nearest Neighbour Interchange Distance between Ranked Phylogenetic Trees

- 2019 Max Planck Institute for Mathematics in the Science, Leipzig (GER). The Ranked Nearest Neighbour Interchange space of phylogenetic trees
- 2017 **Computational Evolution Group**, *ETH Zurich (CH)*. Discrete Time Trees

Poster Presentations

- 2024 ICERM workshop "Algorithmic Advances and Implementation Challenges: Developing Practical Tools for Phylogenetic Inference", *Providence (RI, US)*. Poster: Instability in Phylogenetic Trees after Taxon Addition
- 2022 **Phylomania 2022**, *Hobart (AU)*. Poster: Subtree Prune and Regraft on Ranked Trees

Other

- 2022 **School of Mathematics and Statistics**, *University of Canterbury (NZ)*. How to Give a (Good) Talk
- 2020 **Postgraduate Symposium** (1st place Best Presentation Award), *University of Otago (NZ)*.

The Complexity of Computing the RNNI Distance between Phylogenetic Trees

2020 **Seminar of Departments of Computer Science and Information Science**, *University of Otago (NZ)*. The Complexity of Computing Nearest Neighbour Interchange Distances between Ranked

Phylogenetic Trees **Destaraduate Symposium** (2nd place Best Presentation Award) *University of* 

2019 **Postgraduate Symposium** (2nd place Best Presentation Award), *University of Otago (NZ)*.

Online Algorithms in Computational Biology

#### Publications

**Collienne, L.**, Barker, M., Suchard, MA., & Matsen IV, FA. (2025). Phylogenetic tree instability after taxon addition: empirical frequency, predictability, and consequences for online inference. *Systematic Biology syae059.* https://doi.org/10.1093/sysbio/syae059

**Collienne, L.**, Whidden, C. & Gavryushkin, A. (2024). Ranked Subtree Prune and Regraft. *Bulleting of Mathematical Biology 86, 24. https://doi.org/10. 1007/s11538-023-01244-2* 

Berling, L., **Collienne, L.** & Gavryushkin, A. (2024). Estimating the mean in the space of ranked phylogenetic trees. *Bioinformatics, Volume 40, Issue 8.* https://doi.org/10.1093/bioinformatics/btae514.

Bouckaert, R., **Collienne, L.** & Gavryushkin, A. (2022). Online Bayesian Analysis with BEAST2. *BioRxiv*.

**Collienne, L.** (2021). Spaces of phylogenetic time trees (Thesis, Doctor of Philosophy). University of Otago. Retrieved from http://hdl.handle.net/10523/12606

**Collienne, L.**, Elmes, K., Fischer, M., Bryant, D. & Gavryushkin, A. (2021). Discrete Coalescent Trees. *Journal of Mathematical Biology 83.5, p. 60. issn:* 1432-1416.

**Collienne, L.** & Gavryushkin, A. (2021). Computing nearest neighbour interchange distances between ranked phylogenetic trees. *Journal of Mathematical Biology 82.1, p. 8. issn: 1432-1416.*